WoT Protocol Binding

W3C WoT face to face meeting

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New patterns in Protocol Bindings

- Simplified TD impact
- Extended Action pattern
- Event delivery over websockets
- Event Delivery over webhooks
- Mutiplexed event streams and Subscription pattern
- URI Templates in Protocol Bindings
- TD Vocabulary

Simplified TD

- No change to the underlying TD model
- dataSchema elements do not need to be tagged with a schema keyword unless there is both an input and output schema for an interaction
- Form elements do not change to accommodate the new TD serialization
- Reworked the examples in the document

Extended Action pattern

- Invoking an Action may create a new interaction instance for tracking and logging
- Protocol Binding specifies an outputMediaType

Event delivery over websockets

- Simple protocol binding with ws: or wss: URI in the form
- Event payload is described in the dataSchema

Event delivery over webhooks

- Roles are reversed and the thing pushes events to the webhook
- Client creates a webhook and provides a server URI for the thing to push events to
- Suitable for multiplexed event streams
- Webhooks have a life cycle, create to delete
- More reliable delivery due to push model
- Also could be used for thing to thing orchestration

Multiplexed events using EventSource as a sub-protocol

- Multiplexing aggregates events from across time and space, multiple event types in an event stream
- EventSource provides a way to identify the sources of individual events in a multiplexed event stream

Subscription Resource

- Filter capability allows selection of one or more Events to include in the Subscription
- Subscription Resource could be exposed for each Event that supports Subscription, and/or exposed for the entire TD
- Multiple subscriptions could be created on a subscription resource
- Delivery method could be configured from a list of supported delivery methods (ws/wss, EventSource, webhook) and use EventSource sub-protocol

URI Templates

- RFC 6570
- Substitution of path and query variables at runtime
- JSON Schema to describe the variables, including semantic annotation, serialized as URI data

URI template in the form:

```
"href": "/example/{instance}/actuation{?level}"
```

Schema in the interaction description:

```
"uri-properties" : {
  "level": {
    "type": "number",
    "@type": "iot:LevelData",
    "minimum": 0,
    "maximum": 254
  },
  "instance": {
(etc.)
```

TD Vocabulary

- Actions
- Events
- URI Templates